to 1991. In 1991, the fraction of sales deriving from US operations was 72% of the total as compared to 28% for international sales, but international sales then increased by 7% as compared to 5% for domestic sales. The comparison with respect to operating profits is even more striking, in that international operating income increased by 15% compared to a 5% decrease in domestic operating income. With respect to net income, Reynolds showed a profit in 1992 of $ 812 million, as compared to $ 368 million in 1991. It is expected that the price war in the US will cost the company $ 900 million in 1993 and reduce its free cash flow to $950 million from $1.6 billion. In the second quarter of 1993 RJR attempted to sell 93 million shares of a new class of stock tied to its food business, but it shelved the idea when it could not get its targeted price. The company had expected to raise more than $1.5 billion from the sale, and pay off some of its current $13.5 billion debt. Mr. C.M. Harper, of ConAgra Inc., was named RJR's new chief executive at the end of May, 1993, to succeed Mr. Gerstner who left to become CEO of IBM.

As a consequence of its massive debt resulting from the leveraged buy-out, Reynolds' number one priority for some time has been cost reduction in order to pay down debt as quickly as possible. One result of these measures was the closing of some unprofitable plants and the reallocation of production for certain cigarette brands. For example, Reynolds' Belgian factory at Gosset was closed, and production was transferred to Reynolds Germany. Currently, Reynolds has only four manufacturing sites in Europe - two in Germany, Trier and Berlin, one in the Canary Islands, and one in Dagmersellen, Switzerland. Dagmersellen produced 5.8 billion cigarettes in 1992, of which 70% were exported. Of the four facilities, the Trier factory is probably the largest. The Trier plant produces approximately 80 brands of cigarettes from 100 different blends in some 530 pack variations. These are exported to 90 different countries. The Trier factory has developed a flexible approach with regard to primary processing, manufacturing and packaging, and has its own offset printing works. Apart from high speed machinery, there are also older units which produce small batch sizes more economically than the faster models. RJR announced that it would build a tobacco foil plant with a 12000 ton/year capacity at a cost of DM 70 million. The result of the strategy of concentrating European production in Germany is that in the past five years Reynolds Germany has increased its exports by about 20 billion units.

(b) Major Products and New Product Activity

Reynolds' has increased its market share significantly in two countries, France and Spain, during the first 10 months of 1993 compared to the same time period in 1992. Current market shares are: the Netherlands, 15.5%; France, 11.3%; Spain, 9.4%; Germany, 6.5%; Belgium, 5.7%; and Italy, 2.0%. This compares to 15.1%, 8.1%, 8.2%, 6.6%, 5.6%, and 2.2%, respectively, in 1992. The significant increases for both France and Spain are a consequence of new product launches which offer the consumer American blended cigarettes at a reduced price. Reynolds has almost certainly adopted this policy as a consequence of their relatively low market share in western Europe as well as the fact that they were essentially a one brand company in the Region, and that brand was Camel. In France, Reynolds introduced Winston KS Box 25's and Winston Lights KS Box 25's in January, 1993. These two packings were priced at Ffr 14.00 compared to Ffr 13.50 for Camel 20's. In addition, the price of Winston 20's was reduced significantly. As of October, 1993, Winston (20's and 25's) had achieved a market share of 5.1% compared to 0.9% in the previous

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year. Gold Coast Export and Gold Coast Export Lights KS Box 25's, which had been introduced to the market in November, 1992, had achieved a 1.2% market share as of October, 1993. Sales of Camel declined significantly over the same time period with a market share in 1993 of 4.9% compared to 7.2% a year earlier. As a consequence, although Reynolds has clearly increased its market share, margins must have decreased to some extent. This strategy of sacrificing margins in order to build market share is virtually identical to the strategy Reynolds pursued in the US market which ultimately resulted in significant profit losses for the whole industry. The situation is quite similar in Spain. Reynolds introduced Gold Coast in January, 1993, as a low-priced American blended cigarette. As of October, 1993, Gold Coast had built a 3.2% market share in this market. Market share of Winston in Spain declined to 4.8% from 6.4% in 1992, while Camel share declined to 1.4% from 1.8% in 1992. It should be noted that at least in Spain, Reynolds' sacrifice of margins are somewhat limited in that the Gold Coast blend is significantly less costly than the blend used in premium brands. The blend consists of 47% combined reconstituted tobacco and stems and only 53% lamina. If one simply looks at Reynolds' market share figures in the other western European countries, it would appear that they are not pursuing this strategy elsewhere. At present, that is certainly the case; however, there is one other activity which should be noted. Reynolds has introduced two line extensions into the Club family, one in 1992 and one in 1993, which is priced significantly below premium products. This product has not done particularly well, but it is clearly not an American blended cigarette.

With respect to other new product introductions by Reynolds, there has been only minimal impact. Most of them have been Camel line extensions. Reynolds introduced Camel Medium KS Box 19 into Germany in June, 1993. Sales through October had been only 70 million units. In September, 1993, Reynolds introduced M Lights 120's Box 19's. This product has not been on the market long enough to assess its impact. Reynolds' only other new product introduction in Germany was Monte Carlo 100's 25's, which came on the market in February, 1992. Sales have been virtually non-existent. In Italy, Reynolds introduced Camel Milds in a 20's pack in October, 1992, and the same cigarette in a 10's pack in September, 1993, as a promotion. Total 1993 sales for Camel Mild in Italy through October were only 72 million units. Reynolds marketed Camel KS in a 10's pack in France in January, 1993, and the Camel 80th Anniversary Box in September, 1993. Total sales have only been 75.7 million units. Although the Camel 80th Anniversary packs sold 41.8 million units in the month of October, it would be reasonable to assume that most of these sales were to existing Camel smokers. Four new products were introduced onto the Belgian market in 1992-1993, all Camel line extensions. Camel KS Box 25's was marketed in November, 1992, Camel Milds in both a 25's and a 10's packing were introduced in April, 1993, and Camel KS Box 10's, in October, 1993. Total sales through October, 1993, for all four line extensions have been 69 million units. Finally, Camel Lights KS Box 25's (February, 1993) and Camel Lights KS Box 20's (May, 1993) were introduced into the Netherlands. The Camel Milds 25's have done reasonably well with sales of 83 million units; however, monthly sales have not been growing.

(c) Technology Assessment

Reynolds' investment in R&D is significantly greater than all other tobacco companies except for Philip Morris and Japan Tobacco. However, essentially all

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of their R&D is located in Winston-Salem. They have a small laboratory in Cologne, headed by Mr. Barton, staffed by 25 individuals. This lab carries out QA and some Product and Process Development. The Winston-Salem facility has a staff of about 650 scientists and technicians. In addition to the normal work on product and process development, Reynolds is particularly strong with respect to ETS research and biochemical research. In addition, they have an excellent analytical chemistry department. It should be noted that there is reason to believe that Reynolds will cut staff at their Winston-Salem facility - perhaps by as much as 100 individuals.

Reynolds continues to maintain a high level of patent activity. In a period covering 1992 and the first half of 1993, 21 different patents assigned to RJR were published. The breakdown of these patents is as follows:

> Ten patents on tobacco processing - three dealing with reconstituted tobacco processing; one with tobacco expansion; and six with tobacco extraction processes aimed at obtaining flavors, adding flavors, or removing compounds from tobacco.
>
> Five patents on machinery - two covering methods of control (maker and primary), one for reclaiming tobacco from a defective pack, and two for making parts of non-conventional smoking articles.
>
> Three patents of non conventional smoking articles.
>
> Two patents on cigarette construction - one on a double wrapper for side stream reduction, and one on a charcoal filter.
>
> One patent on packaging.

The above patents set comprised 28 national patents (23 US, 5 Canada) and 10 EPO publications.

(d) Strategies for Growth

At this point Reynolds' seems to have realized that their ability to grow in western Europe appears to be limited since they are basically a one brand company in this region. They have addressed this potential problem with a vengeance in 1993 in two countries - France and Spain - with the introduction of lower priced American blended cigarettes. This strategy not only significantly increased market share in both countries, but also resulted in new product sales of 3.8 billion new units in those two countries alone. This strategy represents a definite threat to PM Europe, particularly if Reynolds expands it to other western European countries.

As far as other areas within Europe are concerned, Reynolds has adopted an extremely aggressive policy in acquiring or building new factories. Reynolds has just completed the construction of a new factory in Torbali, Turkey. The 135,000-square foot plant cost $50 million to build and has an initial production capacity of 10 billion units. Production started in April. The factory is part of a $100 million investment earmarked for Turkey. Reynolds announced in 1992 that it had acquired the Satoraljuajhely factory in Hungary. This factory, the last in Hungary to be sold, is now owned 85% by Reynolds and 15% by the employees. Located in the north-eastern part of the country, it has an annual

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capacity of 5.5 billion units and had a 1991 pre-tax profit of 123 million forints on gross sales of 4.8 billion forints. In Poland, Reynolds is engaged in intense negotiations over the acquisition of a stake in the Radom factory. In addition, it is building a new $33 million cigarette factory in Piaseczno, near Warsaw, which is due to come on-stream by the third quarter of 1993. The factory is planned to have an annual capacity of 8.6 billion cigarettes. Camel will be its first brand.

Reynolds' most extensive acquisitions have been in Russia and the Ukraine. In the Ukraine, Reynolds is attempting to acquire a 70% interest in two of the four factories there, the Lviv and the Kremenchuh factories. The Ukrainian government has the remaining 30% ownership. These two factories produce about one-fourth of the Ukraine's 80 billion cigarettes, and with improvements that Reynolds has committed to make, will produce about 25 billion units. Reynolds will produce "high-quality and affordable local filtered, non-filtered and papirosy cigarettes, using primarily local tobacco and materials." RJR brands, such as Camel and Winston, are expected to be introduced later. The deal however was not finalised as of April 1993 because the Reynolds project did not comply with the Ukrainian law on several counts. Reynolds has also acquired a 52% interest in the former AS-Petro factory, now called RJR-Petro, in St. Petersburg. The remaining share of the factory resides with the employees. The factory has 1400 workers, a capacity of 15 billion cigarettes, and is the largest cigarette factory in Russia. Reynolds expects to be able to increase capacity to 22 billion units following a modernization program. As was the case with Reynolds' investment in the Ukraine, initial production will be devoted to the ten existing local brands currently being manufactured there.

b. Other Competitors

Although the competitors discussed above certainly represent our major competitors in both western and eastern Europe, there are other companies which cannot be ignored. Austria Tabakwerke (ATW) already has a 0.7% share in western Europe (although not in the six country consolidated region discussed in this section). In 1992, sales of cigarettes including exports totalled 21.3 billion units, an increase of 0.5% over 1991. Its turnover totalled $1.9 billion in 1992, but pre-tax profits fell AS 174 million to AS 866 million. ATW has affiliates in Germany, UK, Malta and the Philippines. It has acquired a 49% stake in Tobaccoland, Germany's largest tobacco wholesale business, and recently has begun diversification into sporting goods.

ATW is aggressively attempting to expand its market share, particularly in Germany where ATW's production share in dealers' own brands climbed to a remarkable 42%. In addition, ATW plans to expand into Eastern Europe. It, of course, owns 20% of the Eger factory, and 50% of Polcompany in Poland, and is currently discussing possible investments in the Ukraine, Croatia, and the Slovak Republic.

ATW has invested DM 40 million in a new research centre in Vienna and its staff should rise from 30 to about 50. Although their main activity is QA and product development, they have very modern instrumentation and do a significant amount of high level research on tobacco and/or smoke components that have been allegedly related to health problems. ATW filed a patent on filter making in 1992.

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

Denmark's Skandinavisk Tobakskompagni (ST) is in a similar situation. The company already dominates the Scandinavian market, and has successfully introduced its Prince brand into Germany. Introductions into other Western European countries are planned. ST is also expanding into Eastern Europe. A factory has been purchased in Latvia, and negotiations are in progress for a factory in Poland. Another "small" competitor which has established itself in Eastern Europe is the Swedish Tobacco Company, which recently purchased the tobacco monopoly in Estonia. Even TEKEL, the Turkish monopoly, has plans to begin exporting outside of Turkey, but nothing is known regarding those strategies which might be adopted.

Lastly there is Japan Tobacco. JT, which manufacturers the world's second best selling cigarette, Mild Seven, previously had no presence in Europe. Although they signed an agreement with Rinsoz & Ormond in 1990 to produce a small number of Mild Seven cigarettes, these cigarettes were for export to Taiwan. The license has now been granted to ATW. In early 1992, JT acquired the UK-based Manchester Tobacco Company (MTC) for $8.9 million. MTC, which produces about 1.5 billion cigarettes a year, accounts for about 1.5% of the UK market with brands such as Kings and own-label products, and also exports cigarettes to East-Asian markets. It is possible that JT will begin to penetrate the European market, and further purchases are possible. If for no other reason, JT must be taken seriously because of their commitment to new technology, as demonstrated by their long-standing flow of patents. In the nine-month period from July 1, 1991, to March 1, 1992, 38 patents were issued to JT. If the world cigarette market should ever shift from today's cigarette to some type of non-conventional product, JT will certainly be a major player.

c. Possible Competitive Threats

The largest competitive threat to PM Europe has already been explicitly mentioned above; namely, the possibility that Reynolds will expand its strategy of marketing low priced, American blended cigarettes elsewhere in western Europe. From an R&D standpoint, our response to such a threat must be to allocate some resources to the development of low cost products which can compete with Reynolds' products yet retain significant profit margin. Also, any PM low priced, American blended product must be sufficiently differentiated from Marlboro in perceived quality so that we minimize cannibalization. The other threat that exists is that there still exists technology in the industry which can be used to give our competitors a sustainable advantage. The launch of New West by Reemtsma is one clear-cut example, but the two distinctively flavored cigarettes recently introduced by SEITA must also be watched. R&D must maintain considerable vigilance in monitoring our competitors' technology to be able to anticipate as best as possible innovative new products.

One other point needs to be made. All but one of our western European competitors has the potential to take market share from PM Europe. It is interesting to note that the two competitors who took clear-cut action in 1993 were those who felt most threatened. Reynolds has the smallest market share of the major companies in western Europe, while Reemtsma is the only non-monopoly which had virtually no new product sales. Perhaps those competitors who need to be watched most closely are those which "are the most desperate."

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

V. R&D STRATEGIES

1. Operations Support

1.1 Product Quality

Issue:

How do we optimize the visual quality of our products to meet consumer expectations, while at the same time minimizing those efforts which do not actually address consumer desires ?

Objectives:

Ensure that our products strictly adhere to the highest standards of quality with respect to consumer expectation, and that product quality serves as a competitive advantage.

Strategies:

1.1.1. Develop, together with Marketing, a program to address the consumer's perception of quality and use it, along with consumer complaint data, to ensure that quality programs meet consumer needs.

1.1.2. Continue to support the new visual quality audit, prepared in collaboration with PM USA, in all affiliates and licensees.

1.1.3. Provide PM-Europe affiliates and licensees with the technical support to improve the visual quality of their products.

1.1.4. Increase VQA training for new affiliates and transfer analyses of non-corporate brands to the factories.

1.1.5. Continue to monitor competitors quality and replace, in certain markets, standard market audits by an audit addressing visual quality per price segment.

1.2 Raw Material Quality

Issue:

How do we ensure that raw materials meet PM quality standards while addressing the inevitable increase in sample load, and how can we set optimum specifications for non-tobacco materials to minimize variations in the performance of finished products ?

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

Objective:

Continue to monitor both tobacco and non-tobacco materials using new technology where applicable, and whenever possible establish non-tobacco materials' specifications based on finished product performance.

Strategies:

1.2.1. Continue the revision of packaging material specifications in collaboration with Packaging Engineering EEC.

1.2.2. Monitor sufficient numbers of tobacco lots to ensure that all PM Europe blends will result in cigarettes meeting PM specifications by using the available prediction model.

1.2.3. Improve the physical quality of tobacco through corrective actions at the supplier, based on the results of the first production (threshing) batch/run.

1.2.4. Maintain proper infestation control efforts throughout the region by audits, technical assistance and training.

1.2.5. Continue the development of vendor partnering programs which will allow the amount of effort required to inspect incoming non-tobacco materials by all PM Europe QA Departments to be reduced.

1.2.6. Monitor a sufficient number of raw material samples for FTR to ensure that PM specifications are adhered to.

1.2.7. Complete the development of near infrared (NIR) methods as a production QA tool for the indication of any corrective measures necessary prior to the application of flavors and casings.

1.2.8. Investigate the development of new technologies which will be useful in the area of incoming materials specifications.

1.2.9. Evaluate synergy programs and new Purchasing Procurement scenarios in terms of technical feasibility and impact on product performance.

1.2.10. Optimize raw material specifications in order to minimize product performance variability.

1.3 Productivity Improvements

Issue:

How should R&D support Operations with respect to improvements in factory productivity and reductions in costs through enhancement of non-tobacco material quality and the use of alternative materials ?

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

Objective:

Contribute to factory productivity improvements and waste reduction by ensuring that materials are specified to optimize machinability while minimizing down time and rejects.

Strategies:

1.3.1. Continue the qualification of new plug wrap/tipping paper combinations which will improve machinability and will reduce rejects related to filter attachment.

1.3.2. Develop, in conjunction with our suppliers, new cigarette papers with improved machinability on higher speed makers.

1.3.3. Qualify non-chlorine bleached wood pulp paper as a potential replacement for flax/hemp/esparto papers.

1.3.4. Investigate the possibility of replacing the black tow used on all charcoal filters by white tow or white tow blackened on the filter maker.

1.3.5. Evaluate new cochise qualities (supplied by PM companies) which result in improved machinability.

1.3.6. Ensure that the same tows produced by different suppliers are truly interchangeable and can be used to produce filters at the same minimal weights.

1.4 Quality Management

Issue:

How do we manage our overall quality program to ensure that the required objectives are met, while, at the same time, ensuring that the cost of quality is minimized ?

Objective:

Provide optimal quality at an appropriate cost through an efficient quality management program.

Strategies:

1.4.1. Develop a plan for a program which addresses the cost of non-quality.

1.4.2. Continue to address standardization of QA methods and procedures. Maintain expert working groups in the areas of incoming materials, primary QA, secondary QA, smoking laboratory, and panels.

1.4.3. Continue to define, develop and implement programs aimed at the prevention of non-quality.

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

1.4.4. Develop in-house expertise for auditing quality assurance and manufacturing procedures.

1.4.5. Provide PME affiliates and licensees with product, material, and ingredient specifications.

1.4.6. Monitor PM products in the Regions in order to ensure that they will comply with PM specifications.

1.4.7. Provide all PM Europe manufacturing sites with technical support in the areas of QA systems, organization, methods, equipment, and procedures to meet PM quality standards.

1.4.8. Implement general quality assurance training programs for licensees and contract manufacturers.

1.4.9. Provide PME affiliates and licensees with the appropriate methodology to monitor subjective quality of production through the maintenance of trained smoking panels.

1.5 Process Improvement

Issue:

How should R&D support Operations with respect to primary process technology in order to optimize quality and factory productivity?

Objective:

Ensure that tobacco processes meet Operations' requirements of both PME regions in the areas of productivity, yield, quality, and/or other needs.

Strategies:

1.5.1. Provide technical assistance and support to affiliates and licensees in the areas of strip, BBS, and stem processing, and assist in the definition of layouts for primary extensions and/or new primaries, giving priority to Eastern European factories or any other new acquisition.

1.5.2. Maintain and up-date the PM Europe Primary Information Manual and complete the factory comparisons.

1.5.3. Implement the program for Good Manufacturing Practices (GMP) and Tobacco Processing Specifications (TPS) for the European factories in co-ordination with other groups within and outside R&D.

1.5.4. Ensure that processes and unit operations are, within rationalized limits, standardized, and that the resulting products are properly evaluated and qualified after start-up of new or modified equipment.

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1.5.5. Co-ordinate within PME the Tobacco Utilization Program, initiated by PM USA, which aims to define a management strategy for optimized tobacco utilization.

1.5.6. Continue to evaluate quality and processing parameters in the primaries and identify the impact of processing changes on product quality in order to make recommendations to further improve operations of affiliates and licensees.

1.6 Expanded and Reconstituted Tobaccos

Issue:

How do we provide flexibility in the sourcing of ET and Recon products to meet the needs of by-product utilization and blend requirements?

Objective:

Ensure that ET and Recon processes and products meet PME requirements regarding product quality, process safety and other needs.

Strategies:

1.6.1. Provide assistance for the start-up of the new DIET II/NET facility in BOZ and ensure the qualification of ET products.

1.6.2. Establish and implement GMP's, Processing, and Product Specifications and complete the ET section of the PME Primary Information Manual.

1.6.3. Ensure assistance to affiliates and licensees for trouble shooting, blend modifications, and the implementation of process and product quality improvements.

1.6.4. Co-ordinate ET process safety matters between PM USA and Europe, assist affiliates in the implementation of safety programs, and ensure the follow-up of specific incidents and environmental issues.

1.6.5. Ensure that sheet production facilities in factories which are purchased during the plan period are optimized. Should the need for a European sheet plant arise, provide support for a pre-engineering study.

1.6.6. Continue to optimize the utilization of OTM's with respect to all existing and new reconstitution processes in order to balance regional feedstock generation with sheet needs and investigate alternative use of factory by-products.

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

2. Product Development

Issue:

How do we reposition our current brands and introduce brand extensions and new brands to assure coverage of the important market segments?

Objective:

Optimize the performance of our existing products and develop new products based on business requirements with the highest possible level of consumer acceptance.

Strategies:

2.1. Develop and implement a Product Portfolio Management process to be in a position to anticipate future changes to the Philip Morris product families in terms of external regulations, consumer acceptance, and profitability.

2.2. Develop new products for the EEC markets to take advantage of growing market segments, new market niches, and competitor vulnerability in order to ensure that PM volume continues to increase.

2.3. Support the Director Product Development EEMA in the areas of prototype development and evaluation and the establishment of documentation and specification.

2.4. Make optimum use of the "Product Performance Evaluation System", the "European Consumer Panels", and our capability of conducting qualitative research in order to maximize consumer acceptance of our existing as well as new products.

2.5. Conduct and/or support programs aimed at reducing cost of our existing products while maintaining consumer acceptance at its highest level.

3. New Product Technology

Issue:

How do we identify and evaluate new technologies which will allow us to be a leader in innovative product concepts and will also enable us to respond to competitive challenges?

Objective:

Increase the effectiveness in technology management in order to improve product optimisation and create new and innovative concepts for the cigarette market.

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Strategies:

3.1. Monitor technologies developed within and outside of the corporation on a world wide basis to identify potential areas of application and maintain a technology "storehouse."

3.2. Further strengthen our know-how in the area of technology-product relationship.

3.3. Develop and apply a screening system that can be used to select the most attractive opportunities from our inventory of all new and innovative product concepts.

3.4. Conduct qualitative studies on our key markets in order to evaluate the potential consumer benefits of new and innovative product concepts.

3.5. Develop to the stage of industrial application selected technologies and innovative products.

3.6. Identify and develop technologies providing the potential to significantly reduce product cost while maintaining product performance at an acceptable level.

4. New Process Technology

Issue:

How do we identify and evaluate new technologies which allow us to be a leader in innovative product concepts and will also enable us to respond to competitive challenges?

Objective:

Ensure that new process technologies which will result in further improved product quality, better processing yield, increased productivity and cost savings are adequately assessed and implemented.

Strategies:

4.1. Develop and/or implement with other groups within PME and PM USA the following technologies:

- Cut filler recovery from winnowers
- Class "w" tobacco strip recovery
- Cut width optimization
- High temperature steam treatment prior to cut rag dryer
- Stem expansion technologies
- Direct cylinder conditioning
- Controlled cut filler particle size
- DIET II
- New Expanded Tobacco (NET) and Short Cycle Impregnation (SCI)

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

- Cast Leaf (CL)
- New Blended Leaf (NBL)

4.2. Keep abreast of processing technologies developed by equipment suppliers and other companies to evaluate their potential application in PM facilities.

5. The Competitive Environment

Issue:

How do we obtain and utilize competitive intelligence in order to be able to evaluate and anticipate potential competitive threats.

Objective:

Improve the quality of strategic and operational decisions by adding the perspective of competitive events particularly emphasizing the scientific and technological environment in our area of operation.

Strategies:

5.1. Monitor PM and competitor products in the regions in order to identify trends and provide data regarding product quality and performance.

5.2. Implement a process which ensures rapid awareness of all new market introductions of our competitors.

5.3. Develop and implement a competitive intelligence tracking system in which raw data is screened, sorted, verified, and analyzed in order to create useful and relevant information.

5.4. Develop and implement a proactive simulation tool using the available information in order to identify threats to and/or development opportunities for our company.

5.5. Screen competitive products for side-stream smoke visibility.

6. Environmental Tobacco Smoke

Issue:

How do we confront attacks on PM and our industry based on presumed health risks of environmental tobacco smoke ?

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

Objective:

Assess the impact of environmental tobacco smoke (ETS) on indoor air quality and investigate potential methods of altering the chemistry of ETS.

Strategies:

6.1. Conduct investigations on the potential formation of undesirable components in aging ETS and assess how they might be controlled.

6.2. Participate in industry programs to develop and recommend analytical methodology for use by industry and government.

6.3. Develop and use portable monitoring equipment to evaluate indoor air quality in public structures and transportation.

6.4. Evaluate the effect of modified cigarette wrappers on the chemistry of sidestream smoke and investigate methods to screen the potential effect of alternate paper fillers.

6.5. Support Science and Technology in their investigations on ETS.

6.6. Complete the determination of the kinetics of nicotine adsorption and desorption on several different types of surfaces and ensure that the results of this study are properly utilized in the company's ETS effort.

7. External Issues

7.1 Product Compliance

Issue:

How do we anticipate and satisfy all the regulatory requirements arising from external pressures on our products ?

Objective:

Ensure that blend components, non-tobacco materials, finished products, and packaging comply with existing and future legal requirements in both the EEC and EEMA Regions.

Strategies:

7.1.1. Monitor pesticide residues on incoming tobacco lots, finished products, potential leaf purchases, and potential exports to the USA and Brazil with a frequency based on legal requirements and sound statistical practices.

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

7.1.2. Develop rapid screening methods for pesticides which will allow a significant reduction in workload while maintaining a high level of reliability.

7.1.3. Monitor ingredient levels in cigarettes and monitor manufacturing materials either currently being used or being evaluated for qualification.

7.1.4. Extend analytical capabilities for pesticides and ingredients for which legislation is being proposed or which are considered undesirable in, or in contact with, our products.

7.1.5. Investigate methods to significantly reduce the delivery of TSNA to mainstream smoke utilizing information obtained regarding tobacco types which contain only low amounts of TSNA under normal conditions.

7.1.6. Support Packaging Engineering, Lausanne, to ensure that new packaging materials will not impair cigarette subjectives and that all materials used in new packaging meet PM specifications.

7.1.7. Contribute, through contact with suppliers and government authorities, to the registration of PM recommended infestation control products.

7.1.8. Develop, together with suppliers, new adhesives for cigarettes and packaging materials which are based on naturally occurring substances.

7.1.9. Complete the establishment of Material Safety Data Sheets for casings and flavors.

7.1.10. Continue to ensure that PM products are properly tested by governmental laboratories, thereby avoiding problems which could prevent the sale of our products in certain markets.

7.1.11. Monitor all activities concerning the development of tobacco legislation.

7.1.12. Identify regulatory issues of corporate concern in the EEC and EEMA Regions, advise management concerning their technical and legal ramifications, and represent the industry's interests through interactive programs with scientific and norm associations.

7.2 Environmental Issues

Issue:

How do we anticipate and satisfy all regulatory requirements dealing with environmental pressures on our manufacturing processes ?

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Source: https://www.industrydocuments.ucsf.edu/docs/yrbl0000

Objective:

Ensure that processes and manufacturing practices used by affiliates comply with internal directives and external legal requirements.

Strategies:

7.2.1. Identify areas of processing/manufacturing which may pose environmental impact problems and propose alternative solutions.

7.2.2. Develop a battery of analytical tools for emissions and effluents pertinent to our industry.

7.2.3. Investigate the development of filtration and scrubbing techniques.

7.2.4. Continue to interact with other PM Europe Companies to ensure harmonization of environmental programs.

7.2.5. Develop a tobacco waste management program.

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VI. ACTION PLANS

1. Operations Support

1.1 Product Quality

1.1.1. Develop, together with Marketing, a program to address the consumer's perception of quality and use it, along with consumer complaint data, to ensure that quality programs meet consumer needs.

- Fine-tune the standardized consumer/customer system by integrating information received from Marketing and Sales - end 1st quarter 1994.

- Consolidate all information regarding the way consumer/customer complaints are handled by local marketing within PM Europe Regions - end 2nd quarter 1994.

- Develop and implement a software at Affiliates- Complaint System (CS) - for the acquisition and handling of the standardized consumer/customer complaint system - end 1st quarter 1994.

- Establish a procedure for the exchange and evaluation of consumer/customer complaint information among Marketing, Production Centers, and R&D - end 3rd quarter 1994.

- Implement a Consumer Perception of Quality (CPQ) Program which will include obtaining relevant information from PM USA and conducting consumer surveys by means of Market Survey Institutes in relevant countries - end 4th quarter 1994.

- Make use of CPQ and CS to target product quality improvements - end 3rd quarter 1995.

- Review, in light of CPQ and CS findings, VQA Standards so as to ensure that those defects which are most likely to result in complaints are emphasized - end 3rd quarter 1995.

1.1.2. Continue to support the new visual quality audit, prepared in collaboration with PM USA, in all affiliates and licensees.

- Review and up-date the current VQA Standards, together with all parties, under a final form (with the exception of items mentioned under 1.1.1) - end 2nd quarter 1994.

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1.1.3. Provide PM-Europe affiliates and licensees with the technical support to improve the visual quality of their products.

- Monitor the visual quality of products produced by affiliates and licensees.

- Assist factories through on-site training according to established schedule. Major efforts in 1994 will be given to the Czech Republic, Hungary, and Lithuania.

- Create an information book for operators addressing actions to be taken to eliminate certain visual quality defects. Prototype to be finalized mid 1994.

- Assess quality performance of new make-pack equipment at the appropriate vendor. Four assessments are planned in 1994.

- Improve the VQA computer application in order to increase flexibility and reporting - end 1995.

1.1.4. Increase VQA training for new affiliates and transfer analyses of non-corporate brands to the factories.

- Train new Affiliates (together with QS) so as to transfer analyses of non-corporate brands to the factories - ongoing.

1.1.5. Continue to monitor competitors' quality and replace, in certain markets, standard market audits by an audit addressing visual quality per price segment.

- Perform VQA audits per price segment - end 2nd quarter 1994.

- Perform sufficient key market audits to ascertain that, when delivered to the market, our products strictly adhere to PM quality standards and that product quality serves as a competitive advantage - ongoing

1.2 Raw Material Quality

1.2.1. Continue the revision of packaging material specifications in collaboration with Packaging Engineering EEC.

- Revise and develop testing methods and finalize discussions with suppliers for the introduction of all related MQA quality tools dealing with polypropylene film specs - end 2nd quarter 1994

- Develop the specifications, testing methods, and technical sheets for tear tapes. Discuss the introduction at the suppliers and finalize the introduction of all related MQA tools - end 1994.

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- Develop the specifications, testing methods and technical sheets for new inner liners other than the new qualified metalized paper introduced in Germany. Discuss the introduction at the suppliers and finalize the introduction of all related MQA tools - end 1994.

1.2.2. Monitor sufficient numbers of tobacco lots to ensure that all PM Europe blends will result in cigarettes meeting PM specifications by using the available prediction model.

- Allocate enough Cigarette Information laboratory capacity so as to allow a sufficient number of tobacco lots be analysed for tar, smoke nicotine, and total smoke nicotine, as well as tobacco analyses - ongoing.

- Ensure that the present capacity for TLA (1000 lots/year) is available for the requesters - ongoing.

- Review and automate the lot data verification process and optimize user's screen access in order to eliminate hard copy mailouts (TLA European List). This activity will be done in collaboration with the R&D MIS department - end 1994.

- Study all possible efficiency improvements in the TLA process that will enable a capacity increase of up to 1150 lots or more. Implement upon user request assuming availability of capacity in the R&D Smoke Lab - end 1994

1.2.3. Improve the physical quality of tobacco through corrective actions at the suppliers, based on the results of the first production (threshing) batch/run.

- Finalize the introduction of the new TQA concept (preliminary + final audits per grade/supplier/country/crop) and ascertain efficiency of corrective actions recommended to concerned suppliers - end 2nd quarter 1994.

- Monitor offshore tobacco grades and ensure 150 grades will be audited in 1994. Review strip specifications when needed, based on the outcome of preliminary audits in collaboration with Leaf QA controller. Carry out on-site visits when necessary - ongoing.

- Review and automate the TQA data introduction-verification-reporting process and optimize user's screen access in order to reduce hard copy mailouts . This activity will be done in collaboration with the R&D MIS department - end 1994.

- Evaluate introduction of an audit for Oriental tobacco and propose scenarios to R&D and Leaf department - end 1995

1.2.4. Maintain proper infestation control efforts throughout the region by audits, technical assistance, and training.

- Assess insect control procedures at all affiliates and licensees. Assure that PM approved methods are followed - ongoing.

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- Train on fumigation procedures according to requirements. Maintain training and follow-up file for each vendor. Monitor fumigation activities and assess program success - ongoing.

- Provide assistance for specific infestation problems. Continue the program to register methoprene and phosphine plates - ongoing.

- Maintain know-how in infestation control techniques and link with scientific organizations. Assess and possibly introduce new techniques - ongoing.

1.2.5. Continue the development of vendor partnering programs which will allow the amount of effort required to inspect incoming non-tobacco materials by all PM Europe QA departments to be reduced.

- Finalize the present mainframe application by introducing ingredients, filter additives, and adhesives into the Supplier Quality Index section. Add Supplier Delivery Performance Index and Supplier Technical Service Index to enable full technical Supplier Overall Rating - end 2nd quarter 1994.

- Develop specific utilities needed for new affiliates (PM-Izmir, PM-Eger, PM-Czech) and provide access to the technical SOR system - end 1994.

- Continue to evaluate suppliers. Those suppliers which show an outstanding SOR rating will be monitored only for well established business reasons. Suppliers which do not achieve an acceptable SOR rating will be audited and must adopt PM proposed improvement programs - ongoing.

- The introduction of MQA quality tools at all suppliers will continue throughout the plan period as Final Inspection Report for delivery, Master samples cards and machine test pallets are pre-requisite for lowering the workload in the incoming inspections labs. Correlations of testing methods and instruments with suppliers will also continue to ensure that suppliers data in FIR can be trusted - ongoing.

- Compare suppliers FIR results with local IMI results by material type and when matching can be ensured initiate Material Delivery Monitoring which will reduce workload in incoming Inspections. Associate main affiliates in the process - end 1996.

1.2.6. Monitor a sufficient number of raw material samples for FTR to ensure that PM specifications are adhered to.

- This activity will be ongoing throughout the plan period.

1.2.7. Complete the development of near infrared (NIR) methods as a production QA tool for the indication of any corrective measures necessary prior to the application of flavors and casings.

- Set specifications for the NIR method through a collaborative study involving QA and the affiliates - end 1st quarter 1994.

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- Complete all calibrations for bright casing, bright after cut, and burley top casing - end 2nd quarter 1994.

- Ensure that NIR technology to monitor the three types of flavors and casings mentioned above is fully implemented in Berlin, Munich, and BOZ - end 3rd quarter 1994.

- Complete calibrations for burley spray - end 4th quarter 1994.

1.2.8. Investigate the development of new technologies which will be useful in the area of incoming materials specifications.

- Investigate the development of electronic nose technology which will be useful in the area of specified "odorless" materials. Investigate applications for other materials and if positive, update specifications accordingly - end 1995.

- Investigate new materials related testing instruments that could provide new or better knowledge of material behavior in production environment. The main activities will be the implementation process for: 1) Vibromat tester for tow's single denier, 2) Hagerty Roughness tester for papers, 3) Plybond tester for boards, 4) Bristow dynamic absorption tester for papers, and 5) Inkomat tester - end 1994.

- Adapt the method developed in PM USA for on-line moisture determination if the method is implemented in the US - end 4th quarter 1995.

- Investigate the analysis of cocoa powder by NIR - end 1994.

1.2.9. Evaluate synergy programs and new purchasing procurement scenarios in terms of technical feasibility and impact on product performance.

- Provide related working groups with complete technical information in the start up process with the concerned suppliers. Assist in meetings, evaluate proposed commercial scenarios, and make appropriate recommendations. Co-ordinate qualification for cigarette materials once required for the adopted scenarios - ongoing .

1.2.10. Optimize raw material specifications in order to minimize product performance variability.

- Implement the use of one common ethanol denaturation agent to be used by all PM European affiliates and licensees. - End 2nd quarter 1995.

- Implement the standardization of burley spray, burley top and bright casing on all corporate brands as well as the use of licorice substitutes in after cuts and base flavors.

- A detailed presentation covering the results of cigarette paper in Richmond and a proposal for implementing these findings in the EEC Region will be made to QA - end 1st quarter 1994.

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1.3 Productivity Improvements

1.3.1. Continue the qualification of new plug wrap/tipping paper combinations which will improve machinability and will reduce rejects related to filter attachment.

- Develop with Dexter and Schoeller & Hoesch a new highly porous plug wrap paper for high speed machines (simultaneous use of PVA and hot melt gluing systems). Start industrial trials with Dexter and Schoeller & Hoesch papers at R&D - end 1994.

  Implement Dexter and Schoeller & Hoesch papers at all PME affiliates after completing all local confirmation trials - end 2nd quarter 1995.

- Develop with Benkert and Tann a new cork tipping paper for high speed machines, taking into account environmental issues such as non-chlorine bleached fibers and titanium dioxide-free papers. Start industrial trials with Benkert and Tann cork tipping papers at R&D - end 1994.

  Implement Benkert and Tann cork tipping papers at all PME affiliates after completing all local confirmation trials - end 2nd quarter 1995.

1.3.2. Develop, in conjunction with our suppliers, new cigarette papers with improved machinability on higher speed makers.

- Develop another porosity level of cigarette paper with the supplier Tervakoski in order to facilitate changes for monitoring purposes - end 1994.

1.3.3. Qualify non-chlorine bleached wood pulp paper as a potential replacement for flax/hemp/esparto papers.

- Qualify a non-chlorine bleached (NCB) wood pulp cigarette paper as a potential replacement for the flax/hemp/esparto papers on the Pan European Marlboro. Evaluate papers from potential qualified suppliers, make cigarette, and evaluate sensory profiles and machinability. Based on results decide for the need for a Consumer Test - end 2nd quarter 1994.

- Qualify NCB plug wrap papers as a potential replacement for the presently qualified non-, medium-, and high porous plug wrap papers Evaluate papers from potential qualified suppliers, make cigarette and evaluate sensory profile and machinability. Based on results decide for the need of a Consumer Test - end 1995.

- Qualify NCB cigarette papers as a potential replacement for the presently qualified papers used on all brands sold in Germany. Start the program by qualifying OFM NCB paper for the Dresden factory. Evaluate papers from potential qualified suppliers, make cigarette, and evaluate sensory profile and machinability. Based on results decide for the need of a Consumer Test - end 1995.

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1.3.4. Investigate the possibility of replacing the black tow used on all charcoal filters by white tow or white tow blackened on the filter maker.

1.3.5. Evaluate new Cochise qualities (supplied by PM companies) which result in improved machinability.

- Finalize the development of new Cochise to be sourced out of one PM European chocolate manufacturing center. Undertake local confirmation trials with the new Cochise in PMG-B and PMH to check runnability - end 1994.

- Finalize the implementation of the new Cochise in all affiliates and establish specifications and new bill of materials - end 2nd quarter 1995.

1.3.6. Ensure that the same tows produced by different suppliers are truly interchangeable and can be used to produce filters at the same minimal weights.

- Develop with Rhodia and Eastman a new tow quality 2.6/42'000 in order to attain an identical yield to that obtained by Celanese - end 2nd quarter 1994.

  Start industrial trials with Rhodia and Eastman improved tow item 2.6/42'000 at R&D - end 1994.

  Implement Rhodia and Eastman improved tow item 2.6/42'000 at all PME affiliates after completing all local confirmation trials. Modify bill of materials and specifications - end 1995.

1.4 Quality Management

1.4.1. Develop a plan for a program which addresses the cost of non-quality.

- Establish cost of non-quality for one factory jointly with an external consultant - end 1994.

- An Operations Support Task Force has been established which will develop additional specific tactics -end 1st quarter 1994.

1.4.2. Continue to address standardization of QA methods and procedures. Maintain expert working groups in the areas of incoming materials, primary QA, secondary QA, smoking laboratory, and panels.

- Address standardization of QA methods and procedures through expert working groups including one meeting per year - ongoing.

- Continue to devote efforts in order to standardize methods and procedures for incoming materials. One major item planned will be the revision of the PME method 760 " PME Incoming Procedure (version for Suppliers)" to have it compatible with TQM philosophy - ongoing.

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- Finalize the qualification of a new OV oven. Revise method accordingly - end 1st quarter 1994.

- Review, together with affiliates, costs and benefits of current procedures for OV determinations. Evaluate possible reductions or replacement by less labour intensive methods - end 2nd quarter 1994.

- Continue to update the PME-QA instrument list and ensure standardization of instruments bought in EEC/EEMA Regions - ongoing.

- Maintain PME methods file - ongoing.

- Implement the Sensory Profile Analysis Panels in BOZ, Munich, Berlin and Dresden before mid-94 and establish guidelines and procedures outlining how best to use this tool for product maintenance end 1994.

- Start the implementation of the Regular Production Monitoring Panel as an integral part of the TQM concept - end 4th Quarter 1994.

1.4.3. Continue to define, develop, and implement programs aimed at the prevention of non-quality.

- An Operations Support Task Force has been established which will develop specific tactics - end 1st quarter 1994.

1.4.4. Develop in-house expertise for auditing quality assurance and manufacturing procedures.

- Create expertise of a Lead-Auditor - end 1995

1.4.5. Provide PME affiliates and licensees with product material and ingredient specifications.

- Continue to establish main ingredient specifications - ongoing.

- Finalize the implementation of the CO_2 specification at all PM suppliers. Have all CO_2 material specifications signed and approved by the suppliers - End 1st quarter 1994.

- Maintain, update and administer the specifications used by the affiliates and licensees of the two Regions (cigarettes, filters, blends, solution formulations, ingredients, materials) - ongoing.

- Finalize the development of statistically significant tolerances for product (cigarette and filter) and manufacturing specifications - end 1st quarter 1994.

- Establish guidelines for the licensees for proper interpretation of the cigarette and filter product specifications established by PM R&D - end 1994.

- Implement filter weight specification in the filter product specs for all filters.

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- Establish draft specifications for ingredients based on statistical analyses of incoming control results for trial quantities and/or deliveries - ongoing.

- Re-engineer the regional specification computer application to improve efficiency, reliability, and access by users - end 2nd quarter 1995.

1.4.6. Monitor PM products in the Regions in order to ensure that they will comply with PM specifications.

- Provide sufficient CI laboratory capacity to ensure that PM products in the Regions can be monitored for compliance with specifications - ongoing.

- Finalize the development of a new PME product report concept to include information on cigarettes, filters, tobacco, and materials for both Regions - end 1994.

- Review the near infrared test method for the rapid determination of triacetin during production of filters - end 2nd quarter 1994.

- Develop and implement a method for the determination of the tow only weight which includes information on the determination of the triacetin content - end 2nd quarter 1994.

- Implement and present to all affiliates a new reporting scheme for European filter monitoring which includes filter tow only weight - end 1994.

- Monitor PM products for the two Regions in order to ensure that they comply with PM specifications and regulatory requirements. Follow trends and undertake corrective actions when products are inconsistent with specifications - ongoing.

- Standardize the CI lab instrument piloting system - end 2nd quarter 1995.

1.4.7. Provide all PM Europe manufacturing sites with technical support in the areas of QA systems, organization, methods, equipment, and procedures to meet PM quality standards.

- Involve all PM Europe Affiliates and some Licensee laboratory sites in collaborative tests in order to enable them to ensure that their production and audit control facilities are working correctly and allowing them to meet the PM quality standards - ongoing.

- Continue to organize MQA European Instrument Monitoring sessions for all Affiliates with the scope to ensure proper update and understanding of critical material testing methods. In addition, perform periodic inter-affiliate correlation exercises on critical parameters and, based on historical outcomes, re-define individual frequencies - ongoing.

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- Provide support in performing incoming inspections for new PME affiliates in the start-up phase - ongoing.

- Provide technical training on material quality related activities for new affiliates on-site and at Neuchâtel - ongoing.

- Implement a specifications system for new PME affiliates in the start-up phase and define, in collaboration with Purchasing Departments, individual strategies for material procurement concept (Bill of Materials) - ongoing.

- Develop an "Incoming Materials Inspection" package for new affiliates based on minimum quality requirements that could be provided to them with adequate training - end 1994.

- Continue assistance to the Czech Republic. Complete training in primary and secondary QA by mid 1994, for VQA, incoming materials - end 1994.

- Provide QA assistance to Lithuania. Primary, secondary QA, and specs by mid 1994; VQA and incoming materials by end 1994.

- Establish and implement assistance programs for other areas - ongoing.

1.4.8. Implement general quality assurance training programs for licensees and contract manufacturers.

- Develop a basic training program explaining the product and its quality (requirements) at all stages - ongoing.

1.4.9. Provide PME affiliates and licensees with the appropriate methodology to monitor subjective quality of production through the maintenance of trained smoking panels.

1.5 Process Improvement

1.5.1. Provide technical assistance and support to affiliates and licensees in the areas of strip, BBS, and stem processing and assist in the definition of layouts for primary extensions and/or new primaries, giving priority to Eastern European factories or any other new acquisition.

- Assist operation staff in Dresden with the up-grade and improvement of the primary - end 2nd quarter 1994.

- Provide continued assistance to operations FTR for the up-grade and improvement of their primary - end 1994.

- Provide support for the start-up and qualification of the new primary in Kutna Hora - end 2nd quarter 1994.

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1.5.2. Maintain and up-date the PM Europe Primary Information Manual and complete the factory comparisons.

- Complete the factory comparisons - end 1st quarter 1994.

- Complete the integration of the BOZ Primary II into the Manual - end 3rd quarter 1994.

- Updates to the Manual will be made on a yearly basis.

1.5.3. Implement the program for Good Manufacturing Practices (GMP) and Tobacco Processing Specifications (TPS) for the European factories in co-ordination with other groups within and outside R & D.

- Participate in the development and elaboration of process specifications, in view of their inclusion in the mainframe application - end 2nd quarter 1994.

- Issue a draft document for GMP's by mid 1994 and distribute the final version by end 1994.

- Finalize the TPS's for Marlboro within the 1st quarter 1994 and for the other major tobacco blends by end 1994.

1.5.4. Ensure that processes and unit operations are, within rationalized limits, standardized and that the resulting products are properly evaluated and qualified after start-up of new or modified equipment.

- Provide support to FTR/Onnens to improve operation of the ETPRIO line with emphasis on DCC with casing application - end 1994.

1.5.5. Co-ordinate within PME the Tobacco Utilization Program, initiated by PM USA, which aims to define a management strategy for optimized tobacco utilization.

- Assure liaison between PME and PM USA on all matters concerning this program. Implement an efficient co-ordination/collaboration program within PME involving various groups at HQ affiliates and R&D - ongoing.

1.5.6. Continue to evaluate quality and processing parameters in the primaries and identify the impact of processing changes on product quality in order to make recommendations to further improve operations of affiliates and licensees.

- Based on process specifications, develop a monitoring system - end 1994.

- Implement the monitoring of tobacco processing for all affiliates possessing a primary and start the monitoring activity - ongoing.

- In close collaboration with QA-MSG redefine the Primary sampling plan to be in line with tobacco processing and quality specification - end 1st quarter 1994.

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1.6 Expanded and Reconstituted Tobaccos

1.6.1. Provide assistance for the start-up of the new DIET II/NET facility in BOZ and ensure the qualification of ET products.

- Commissioning is scheduled to be completed end March 94, and product qualification will be implemented during the following 2 to 3 months.

1.6.2. Establish and implement GMP's, Processing and Product Specifications and complete the ET section of the PME Primary Information Manual.

- The GMP will be established and reviewed by mid 1994 and fully implemented by end 1994.

- The Processing and Product Specifications for Marlboro ET, issued by end 1993, will be implemented and subsequently revised throughout the plan period to adjust tolerances, targets and parameters according to measurable impact on cigarette quality. The specifications of the other ET blends will be established and implemented during 1994.

- A system for central monitoring of the specifications and minimum sampling and testing requirements for production control will be established in close collaboration with MSG and affiliate QA - end 1994.

- The ET section of the Primary Information Manual will be reviewed by the affiliates by mid-1994 and issued by 3rd quarter 1994.

1.6.3. Ensure assistance to affiliates and licensees for trouble shooting, blend modifications and the implementation of process and product quality improvements.

- Activities directed towards accomplishing this strategy will be ongoing throughout the plan period in both expanded and reconstituted tobacco fields. They include quarterly reports on ET activities within PM International, production quality monitoring, and organising technical ET meetings.

  The following specific process improvement projects will be completed during 1994 :

  - improved control of the heat treatment through the expansion tower

  - evaluate the feasibility to store cased strip or cut rag over the weekend prior to expansion

  - evaluate a multiple dividing plate in the impregnator in order to decrease compaction of cut rag

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1.6.4. Co-ordinate ET process safety matters between PM USA and Europe, assist affiliates in the implementation of safety programs and ensure the follow-up of specific incidents and environmental issues.

- The Kellogg hazard review implementation program will be followed-up during the plan period, and assistance will also be provided when requested on all environmental issues - ongoing.

- European DIET safety committee meetings will be organised and chaired by R&D at least once a year - ongoing.

1.6.5. Ensure that sheet production facilities in factories which are purchased during the plan period are optimized. Should the need for a European sheet plant arise, provide support for a pre-engineering study.

- Activities in support of this strategy will depend on business needs.

1.6.6. Continue to optimize the utilization of OTM's with respect to all existing and new reconstitution processes in order to balance regional feedstock generation with sheet needs and investigate alternative use of factory by-products.

2. Product Development

2.1. Develop and implement a Product Portfolio Management process to be in a position to anticipate future changes to the Philip Morris product families in terms of external regulations, consumer acceptance and profitability.

- Define in collaboration with HQ and local marketing product portfolios per brand family and per market which will reflect the evolution of tar deliveries until 1998 taking into consideration the 1998 EEC Tar Ceiling Directive, the introduction of line extensions, consumer perception, and competitive activities - ongoing.

- Identify, evaluate, and prioritize product concepts based on the above mentioned product portfolios, ensure product design consistency for corporate and regional brands throughout Europe, and evaluate the impact on operations in terms of standardization and productivity - ongoing.

- Lead the development and evaluation of prototypes, initiate ECP testing, establish documentation and specification for the selected candidates including consumer perception and cost, and ensure market introduction based on the timing specified in the product portfolio and confirmed by Management - ongoing.

- The following changes on existing brands have already been identified and will be implemented between now and the first quarter 1995:

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- Tar reduction on Marlboro Lights from 9 mg to 8 mg
- Tar reduction on Marlboro Red from 14 mg to 13 mg
- Tar reduction on Chesterfield FF from 14 mg to 13 mg
- Tar reduction on Chesterfield Mild from 11 mg to 10 mg
- Tar reduction on Chesterfield FF Spain from 15 mg to 14 mg
- Tar reduction on L&M FF from 14 mg to 13 mg
- Blend Standardization on L&M FF from 5 blends to 3 blends
- Tar reduction on Philip Morris KS from 14 mg to 12 mg
- Tar reduction on Philip Morris Lights from 9 mg to 7 mg
- Blend and Flavor modification on Philip Morris KS and Lights
- Blend and Flavor modification on Philip Morris Super Lights

- The following new Line Extensions will be added to our Brand families during the same time period:

  - Marlboro Medium delivering 10 mg of tar (France, Benelux, Greece)
  - Philip Morris Medium delivering 8 mg of tar (Germany)

- The following internal driven product modification will have to be integrated into that program:

  - Cost optimization of the Marlboro blend
  - DIET II qualification at BOZ
  - Non-chlorine bleached cigarette paper
  - CA - Tow produced at "ECTONA UK" (Affiliate of Eastman)
  - Blend standardization between Marlboro PE and Marlboro DB
  - Reformulation of reconstituted tobacco (Off-shore vs US feedstock)
  - NET development at BOZ
  - Modification of glues, cigarette papers, plug-wraps, tipping papers, and tows in order to improve productivity.
  - Tobacco Utilization Program

2.2. Develop new products for the EEC markets to take advantage of growing market segments, new market niches, and competitor vulnerability in order to ensure that PM volume continues to increase.

- The following new products will have to be developed and internally and externally evaluated during the next 12 months:

  - Cigarillo type product for Germany
  - Several options of "ECO" products for Germany
  - Several options of " Post Rolls " products for Germany
  - F6 KS delivering 13 mg of tar for Germany
  - Multifilter 100's delivering 1 mg of tar for Italy
  - Merit Ultra Slim delivering 3 mg of tar for Italy
  - Diana Ultra Lights delivering 1 mg of tar for Italy
  - Dark air cured type cigarette for France and Spain

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2.3. Support the Director Product Development EEMA in the areas of prototype development and evaluation and the establishment of documentation and specification.

- The following activities will have to be performed during the next 12 months:

  - Tar reduction on Marlboro from 14 mg to 13 mg for Switzerland
  - Development of low cost cigarettes, FF and Lights, for Switzerland
  - Development of low cost Maryland type cigarettes for Switzerland
  - Development of a 2 mg tar cigarette for Switzerland
  - Development of a Start Lights KS for CS
  - Development of a Bond Lights for CS
  - Development of a L&M Lights for Egypt
  - Development of a Helikon FF Menthol for Hungary
  - Development of a Helikon Lights Menthol for Hungary
  - Filter length standardization program at Eger in Hungary concerning the following Brands:
    Multifilter KS
    Multifilter Extra Lights KS
    Helikon 2000 KS
    Helikon Lights KS
    Marlboro Lights KS
    L&M Lights KS
  - Development of a L&M Mild for Finland
  - Development of a Lark 100's for Turkey
  - Development of a Lark KS for Turkey

2.4. Make optimum use of the "Product Performance Evaluation System", the "European Consumer Panels" and our capability of conducting qualitative research in order to maximize consumer acceptance of our existing as well as new products.

- Implement the "Sensory Profile Panel" in all affiliates in order to be in a position to evaluate approximately 400 competitive brands twice a year and use the generated data in the "Product Performance Evaluation System" to optimize product concept definition.

- Set up sensory specifications of our key brands which will serve as a reference for the monitoring of our regular production as well as for the evaluation of product modifications.

- Extend the existing computerized cigarette design model by incorporating correlations between sensory profile analysis and cigarette design parameters.

- Set up the necessary structure in the areas of consumer recruitment, test product preparation and shipment, data collection and management, data analysis, and reporting, in-house as well as at the "Paul Robert Institute" to be able to execute 200 ECP runs in 1994.

- Extend ECP testing presently performed in Germany, France and Switzerland to Holland and Belgium.

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- Execute sufficient ECP runs on PMI key brands and competitive brands to build the "confidence areas" - end of 2nd quarter 1994.

- Execute ECP runs with experimental products specifically designed to provide relevant information on the relationship between product design parameters and consumer perceived performance.

- Actively participate in the Product Portfolio Management Process in order to prioritize ECP runs to be conducted on modified and new products in an optimum way.

- Translate the key findings of the qualitative research studies conducted in collaboration with Marketing Research France on Lights, Super Lights, and Ultra Lights into an optimized product design.

- Develop an integrated data base for ECP.

2.5. Conduct and/or support programs aimed at reducing cost of our existing products while maintaining consumer acceptance at its highest level.

- The following brands may undergo blend changes during the plan period with the objective to reduce product cost:

  - Chesterfield FF, Lights, and Ultra Lights
  - L&M FF and Lights
  - Philip Morris Super Lights
  - Marlboro Lights (Germany)
  - Brunette Double Filtre and Extra

- Further investigate all possibilities of reducing the cost of the charcoal filters presently used on most of the products produced in Eger for the Hungarian market.

- Develop less expensive alternatives to the "BOLD" filter and test product candidates using the ECP during 1994.

3. New Product Technology

3.1. Monitor technologies developed within and outside of the corporation on a world wide basis to identify potential areas of application and maintain a technology "storehouse".

- Update our "technology - capability" matrix with information on new technologies which occur on product launches in any of our markets - ongoing.

- Monitor patent applications and grants in all major countries. Update the above matrix with any new ideas or technologies found - ongoing.

- Categorize all listed technologies into Emerging, Pace, Mainstream and Base technologies - ongoing.

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3.2. Further strengthen our know-how in the area of technology-product relationship.

- Conduct experiments and studies to investigate the impact of a given technology on cigarette design and performance whenever needed - ongoing.

- Expand our mathematical cigarette design models to enable rapid achievements of product objectives for mainstream and sidestream smoke deliveries by adding new modules covering new technologies.

3.3. Develop and apply a screening system that can be used to select the most attractive opportunities from our inventory of all new and innovative product concepts.

- Update our catalog of new and innovative product concepts, disseminate the information on a regular basis, and organise, at least twice a year, brainstorming sessions with HQ and local marketing in order to screen and select product concepts with long term earnings potential - ongoing.

- Investigate specifically product concepts and technologies which would lead to tax advantages on our different markets.

3.4. Conduct qualitative studies in order to evaluate the potential consumer benefits of new and innovative product concepts.

- Design and execute a qualitative study in Germany on low sidestream based on the key issues identified during brainstorming sessions in-house and on the results of the research carried out in the USA in 1992.

- Start the design of a qualitative study with the objective to investigate the perception of so-called " ECO " products by our consumer.

3.5. Develop to the stage of industrial application the following selected technologies and innovative products:

- 70 % reduced sidestream visibility with a minimal subjective deficit.

- Stepwise reduction in sidestream visibility so that the subjective changes are imperceptible.

- Investigate the possibility of applying tobacco extracts on filters in order to improve aroma / taste of ultra low tar cigarettes.

- Optimize on-line laser perforation (up-scale from lab-laser to maker at FTR) in terms of machine settings and product variability.

- Continue the investigation of filters modified to change smoke exit patterns in order to assess their effect on subjectives of ultra-low delivery products.- end 4th quarter 1994.

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- Initiate studies in collaboration with Givaudan-Roure targeted at the identification of tobacco identical flavors useful for ultra-low delivery products.

3.6. Identify and develop technologies providing the potential to significantly reduce product cost while maintaining product performance at an acceptable level.

- Develop single paper filters with acceptable appearance and taste characteristics for use in markets where availability and/or price of CA-tow is considered as a major concern.

- Develop a concept to optimize the use of CA-tow with respect to cost and number of items within the 1998 tar ceiling.

- Evaluate the potential of NET and LPG-NET specifically for low cost products.

- Optimize tobacco processing, including casing and flavor application, on our existing low cost blend (Goofy) in order to further reduce product cost.

4. New Process Technology

4.1. Develop and/or implement with other groups within PME and PM USA the following technologies :

- Cut filler recovery from winnowers - Follow-up on process implementation at PMG-Berlin and support implementation at BOZ - end 1994.

- Class "W" tobacco strip recovery - Assist PMG-Berlin in the development of an adequate process for the recovery of wet tobacco strips from washing operations of ordering and casing cylinders - end 1994.

- Cut width optimization - Implement industrial testing at 25 cpi on PE and German Marlboro, including ECP testing - end 1994.

- High temperature steam treatment prior to cut rag dryer - Support the implementation of this technology whenever possible, e.g. for generics and new brands. Specific activities during 1994 include: establish and implement an evaluation program for the HT tunnel in VEZIFA, Dresden, in light of potential tobacco weight savings following approval of blend change for F6 - end 3rd quarter 1994.

- Stem expansion technologies - Pursue stem expansion technologies such as Hauni, Comas and Dickinson-STS, for use with lamina - end 1994.

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- Direct cylinder conditioning - Support the implementation of DCC and vertical tobacco slicing in the context of vacuum chamber replacement and new primary installations - ongoing

- Controlled cut filler particle size - Continue to provide extensive support for the processing areas of controlled strand length, multiple cut widths, new threshing philosophy, and dicing in close co-operation within PME R&D, Leaf and Operations Departments - ongoing.

- DIET II - Investigations to improve Diet I product quality in the direction of NET subjectives through trials in the Richmond pilot plant will be completed before end June 1994. Industrial trials will follow if pilot plant results are positive. Each system e.g. impregnation, expansion and reordering, which is part of the new DIET II / NET installation in BOZ is scheduled to be thoroughly evaluated by mid 1995 for potential up-grading of the existing DIET I plants in other locations.

- NET - The qualification of NET product from BOZ will start in the second quarter 1994 in close co-operation with Product Development and Leaf.

- Short Cycle Impregnation (SCI) - Follow SCI and expansion tower development work in Richmond, and provide assistance for potential implementation within PME - ongoing.

- Cast Leaf and New Blended Leaf - Follow CL and NBL developments in Richmond and provide assistance for the evaluation of sheet products in European cigarettes. Depending on the results of the Catana CL trials, run tests with European feedstocks by end 1994.

4.2. Keep abreast of processing technologies developed by equipment suppliers and other companies to evaluate their potential application in PM facilities.

- This activity will be ongoing throughout the plan period. It will require periodic visits/discussions with equipment suppliers and follow-up on new patent applications. A specific activity for 1994 is to assist in the evaluation of improved foreign matter removal systems in BOZ within 1st half 1994 and in Germany within 3rd quarter 1994.

5. The Competitive Environment

5.1. Monitor PM and competitor products in the regions in order to identify trends and provide data regarding product quality and performance.

- Constantly improve and adapt sampling schemes, within analytical capacity, of competitors' brands so as to optimise the way information is gathered. This implies co-operation with both Marketing and Product Evaluation - ongoing.

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- In order to improve the responsiveness of the CIR system towards company needs, develop and implement a concept for a new CIR system so as to provide rapid information to Product Development, Marketing, and Product Quality Audit - end 2nd quarter 1994.

5.2. Implement a process which ensures rapid awareness of all new market introductions of our competitors.

5.3. Develop and implement a competitive intelligence tracking system in which raw data is screened, sorted, verified and analyzed in order to create useful and relevant information.

- Establish a formal system for the evaluation of competitor patents - end 1st quarter 1994.

- Continue, throughout the plan period, to develop a clear picture of the technology capabilities of our competitors and utilize this information to determine optimum new product and process strategies - ongoing.

5.4. Develop and implement a proactive simulation tool using the available information in order to identify threats to and/or development opportunities for our company.

5.5. Screen competitive products for sidestream smoke visibility.

6. Environmental Tobacco Smoke

6.1. Conduct investigations on the potential formation of undesirable components in aging ETS and assess how they might be controlled.

- The role of nitrous acid in the formation of certain derivatives of nicotine will be elucidated in the second quarter of 1994. At that time studies on a model system will be initiated based on the information gained from the work on aging ETS. The model system will then be utilized to evaluate possible approaches to controlling the reaction under study.

6.2. Participate in industry programs to develop and recommend analytical methodology for use by industry and government.

6.3. Develop and use portable monitoring equipment to evaluate indoor air quality in public structures and transportation.

6.4. Evaluate the effect of modified cigarette wrappers on the chemistry of sidestream smoke, and investigate methods to screen the potential effect of alternate paper fillers.

- A series of prototypes will be made utilizing several types of "reduced sidestream papers" obtained from Richmond. These prototypes will be evaluated for potential changes in TSNA formation - end 4th quarter 1994.

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6.5. Support Science and Technology in their investigations of ETS.

6.6. Complete the determination of the kinetics of nicotine adsorption and desorption on several different types of surfaces and ensure that the results of the study are properly utilized in the company's ETS efforts

- Complete the study of the kinetics of the "rapid" adsorption/desorption of nicotine on representative surfaces - end of 2nd quarter 1994.

- Initiate studies on the kinetics of the "slow" adsorption/desorption of nicotine on representative surface - end 2nd quarter 1994.

7. External Issues

7.1 Product Compliance

7.1.1. Monitor pesticides residues on incoming tobacco lots, finished products, potential leaf purchases, and potential exports to the USA and Brazil with a frequency based on legal requirements and sound statistical practices.

7.1.2. Develop rapid screening methods for pesticides which will allow a significant reduction in workload while maintaining a high level of reliability.

- Raise polyclonal antibodies to non-specific organophosphate haptens - end 1st quarter 1994.

- Evaluate antibodies described above for their suitability in the analysis of organophosphate pesticides as a class - end 4th quarter 1994.

- Continue to evaluate commercially available ELISA kits and/or enzymatic sensors - ongoing.

- Evaluate the applicability of a field assay for DDT on tobacco - end 1st quarter 1994.

- Evaluate alternate approaches for the development of immunocolumns for pesticide isolation and choose the best strategy - end 1st quarter 1994.

- Initiate development of an ELISA method for Ridomil - end 3rd quarter 1994.

7.1.3. Monitor ingredient levels in cigarettes and monitor manufacturing materials either currently being used or being evaluated for qualification.

- Monitor ingredient levels in cigarettes using Project Order protocols - ongoing.

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7.1.4. Extend analytical capabilities for pesticides and ingredients for which legislation is being proposed or which are considered undesirable in, or in contact with, our products.

- Complete development of a method for flavaspidic acid - end 1st quarter 1994.

- Complete development of a method for solanum dulcamara - end 1st quarter 1994.

- Complete the optimization of a gel permeation chromatography method for organophosphate pesticides - end 1st quarter 1994.

- Determine if the HPLC method for MH-30 can be modified to replace the existing colorometric method - end 2nd quarter 1994.

- Develop a head space method for volatile organochlorine pesticides - end 3rd quarter 1994.

- Develop a general method for carbamate pesticides - end 3rd quarter 1994.

- Set up an analytical data base for pesticide results - end 4th quarter 1994.

7.1.5. Investigate methods to significantly reduce the delivery of TSNA to mainstream smoke utilizing information obtained regarding tobacco types which contain only low amounts of TSNA under normal conditions.

- Carry out a pilot study to determine differences in TSNA formation for similar types of tobacco grown in the field and in the greenhouse - end 2nd quarter 1994.

- Develop a method for the determination of low levels of nitrite in tobacco - end 2nd quarter 1994.

- Initiate studies with transgenic tobacco supplied by INRA - end 2nd quarter 1994.

- Complete a study designed to determine TSNA levels in tobacco and smoke in tobaccos originating from key tobacco producing countries - end 3rd quarter 1994.

- Complete a study designed to elucidate the effects of external tobacco flora on TSNA formation - end 4th quarter 1994.

7.1.6. Support Packaging Engineering, Lausanne, to ensure that new packaging materials will not impair cigarette subjectives and that all materials used in new packaging meet PM specifications.

- Assist by conducting analyses, trials, and studies on request for the main Packaging programs, i.e. board weight reduction, 3 point gluing for inner frame, water-based inks systems, recycled board, transport packaging optimization, ...-. ongoing.

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- Ensure that residual solvent limits of printed materials are followed by PME printers by conducting specific delivery controls, as well as correlations with printers and ink suppliers. Undertake corrective actions when deviances are found in collaboration with Packaging Engineering printing specialists - ongoing.

- For all new and modified packaging materials carry out material trials, ensure that there are not likely to be any adverse effects on cigarette quality, and ensure that materials used in new or modified packaging meet PM specifications - ongoing.

- Support the current project to produce packaging board from recycled paper - ongoing.

7.1.7. Contribute, through contact with suppliers and government authorities, to the registration of PM recommended infestation control products.

7.1.8. Develop, together with suppliers, new adhesives for cigarette and packaging materials which are based on naturally occurring substances.

- With respect to tipping and sideseam adhesives, the goal is to have one adhesive completely qualified by end 1st quarter 1994. Efforts to qualify second source suppliers will be pursued in 1994-95. It is planned to standardize packaging adhesives to the best possible extent by mid 1994 and then to start the development of natural packaging adhesives with selected suppliers.

7.1.9. Complete the establishment of Material Safety Data Sheets for casings and flavors.

7.1.10. Continue to ensure that PM products are properly tested by governmental laboratories, thereby avoiding problems which could prevent the sale of our products in certain markets.

- Maintain contacts with official regulatory laboratories in the UK, France, Belgium, Switzerland, Finland, Italy, Poland, and the Gulf Coast Countries and develop contacts with Spain, Hungary, and Czech Republic by the end of 1994. Periodic visits will be made to continue these relationships - ongoing.

- Run collaborative tests, whenever possible, with official regulatory laboratories, and/or assist them in cases of disagreements and/or technical problems - ongoing.

- Support and train, if requested, official regulatory laboratory chemists, provide technical assistance, and promote new technologies - ongoing.

7.1.11. Monitor all activities concerning the development of tobacco legislation.

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7.1.12. Identify regulatory issues of corporate concern in the EEC and EEMA Regions, advise management concerning their technical and legal ramifications, and represent the industry's interests through interactive programs with scientific and norm associations.

- Participate in Coresta task forces as well as in groups such as the Tobacco Advisory Council and maintain an awareness of regulatory issues in conjunction with PME Corporate Affairs - ongoing.

- Have R&D represented in key trade associations and standardization bodies and take an active role in projects interesting for PM.

7.2. Environmental Issues

7.2.1. Identify areas of processing/manufacturing which may pose environmental impact problems and propose alternative solutions

- Participate with PMCS in the development of a PME Environmental Management Manual in line with corporate guidelines.

7.2.2. Develop a battery of analytical tools for emissions and effluents pertinent to our industry.

- This strategy will be supported throughout the plan period by participation in the Coresta task force on this subject.

7.2.3. Investigate the development of filtration and scrubbing techniques.

- Work actively with the CORESTA task force in identifying optimal filtration and scrubbing techniques for our industry.

7.2.4. Continue to interact with other PM Europe Companies to ensure harmonization of environmental programs.

- Participate in the PM - KJS operation / environmental task force and also liaise with PMCS and PM USA for consistency.

- Assist PMCS to develop and implement a corporate Environmental Management System.

- Develop with the major PME affiliates a coherent environmental program.

7.2.5. Develop a tobacco waste management program.

- Develop and test the conditions for efficient incineration and composting of tobacco waste. Part of the work will be done through the relevant CORESTA task force.

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VII. RESOURCE ALLOCATIONS

Resource allocations are shown in the following table. Support activities have been allocated to R&D programs where possible, particularly for MIS, Library, and Patent functions.

One can see from this table that "Operations Support" is by far the largest program with over 45% of R&D resources, followed by "Product Compliance" with 15% and "Product Development" with 11%.

Three-Year Plan 1994-1996 - Resource Allocations (Headcount)

	QA	Res.	Prod. Devel.	Proc. Devel.	R&D Serv.	Total	%
1. Operations Support							
1.1. Product Quality	9.8			0.6	2.0	12.4	6.8
1.2. Raw Material Quality	20.3	2.8	0.6		2.0	25.7	14.2
1.3. Productivity Improvements	2.3		2.2	0.2	0.5	5.2	2.9
1.4. Quality Management	23.4	0.9			4.4	28.7	15.8
1.5 Process Improvements	0.5		0.5	5.6	0.5	7.1	3.9
1.6 ET & Recon	0.6			2.3	0.2	3.1	1.7
Sub Total	56.9	3.7	3.3	8.7	9.6	82.2	45.4
2. Product Development	4.5		11.7	1.5	2.0	19.7	10.9
3. New Product Technology		1.4	4.0	0.5	1.3	7.2	4.0
4. New Process Technology			0.5	4.1	1.0	5.6	3.1
5. Competitive Environment	4.5	0.2	2.6		2.3	9.6	5.3
6. ETS		2.8	0.7		0.3	3.8	2.1
7. External Issues							
7.1 Product Compliance	4.1	19.6	0.2		3	26.9	14.9
7.2 Environmental Issues		1.6			1.5	3.1	1.7
8. - Support	1.5	0.7			5	7.2	4.0
- Management and Administration	4.5	2	1	2.2	6	15.7	8.7
	76	32	24	17	32	181	

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VIII. INTERNAL ISSUES

There are a number of internal issues which R&D will have to address during the plan period.

a) Increasing demand for support while maintaining or reducing headcount.

b) Smoke lab renovation.

c) Relocation of part of the R&D personnel.

d) Consumer testing.

e) R&D Richmond restructuring.

f) Safety.

a) Increasing demand for support while maintaining or reducing headcount

The demand for R&D support will increase in several areas, mainly due to the following factors:

- The acquisition of new affiliates in Eastern countries will require additional efforts in the field of QA (quality management programs, monthly quality audits, smoke analyses), process development (primary upgrade program), and product development (re engineering and development of local brands).

- Because of new tobacco regulations (tar ceilings, tar labelling, pesticide residues, and restrictions in the use of additives), monitoring programs for product compliance will have to be introduced or reinforced for countries where such programs exist. These programs consist mainly of smoke analyses, pesticide analyses and impurities analyses in non-tobacco materials.

- Increased environmental protection legislation and pressures from green NGO's will force us to establish environmental programs which include monitoring of effluents and emissions, noise and dust control, waste management and the conducting of periodic compliance audits. R&D will be involved in most of those activities, as well as in side-programs such as the development of adequate measuring methods, developing and testing of new filtration and scrubbing techniques, and modifications of existing processing equipment.

In order to cope with these new additional activities, cuts in certain projects/programs will have to be made, and personnel will have to be reassigned to other groups, which will be a major challenge due to the different skill/experience needed.

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b) **Smoke lab renovation**

Even if some significant cuts could be made in the present routine analytical programs, it is expected that the demand for smoke analyses may double within the next five years, due to the new active markets, new affiliates, new legal requirements (tar ceilings, tar labelling), and increased efforts in product development. This doubled capacity will mainly be achieved through automation (new smoking machines) and, if needed, through a partial two-shifts operation. This will require a renovation of the laboratory to accommodate new smoking machines, to rationalize the work flow, to change the deficient air conditioning system and to improve some safety aspects. This renovation will be complicated by the fact that no major disruption of the lab throughput will be acceptable.

c) **Relocation of part of the R&D personnel**

The smoke lab transformation will require the elimination of 4 to 5 offices. In addition, in the R&D building, some laboratories and conference rooms, presently being used as offices will revert to their original use. Therefore some 25 R&D staff will have to be relocated. An additional floor will be rented in the Tivoli 5 building in Autumn, 1994, to provide the necessary additional space.

d) **Consumer testing**

The recent decision that product monitoring is to be done at R&D will have an impact on work load and total R&D budget.

e) **Richmond restructuring**

The Richmond R&D plan is presently being reviewed. Although it is still too early to see exactly how we will be affected, it is clear that support will be drastically reduced (pesticide analyses, material safety evaluation, general support, etc.), and that some programs, possibly of value for Europe, will be cut.

f) **Safety**

Following the R&D decision to adapt the ISRS safety program in 1991, the compliance level increased from 33 % in 1992 to 53 % in 1993 (60 % improvement). Although many low risk companies (the case for R&D) would be satisfied with a score above 50 %, we are not, and major programs are in place to achieve over 70 % compliance during the plan period. These programs may slightly interfere with normal R&D activities.

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